Enhancing Student Performance in Secondary Classrooms while Providing Access to the General Education Curriculum Using Lecture Format

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Abstract

In recent years, great emphasis has been placed on providing all students access to the general education curriculum (e.g., Individuals with Disabilities Education Act, No Child Left Behind Act). Given the diversity found among today's student population, both general and special education teachers struggle to find methodologies that enhance the learning of students while simultaneously providing access to the general education curriculum. This challenge is particularly evident in secondary classrooms due to the complexity of the curricula and the emphasis on delivering instruction using lecture formats. The purpose of this article is to share research-supported strategies that increase the likelihood that access to the general education curriculum via class lectures will result in successful student performance. Specifically, the use of guided notes, visual organizers, lecture pausing and structured questioning are addressed.

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As a teacher in a self-contained classroom for students with behavioral disorders, Ms. Saunders has several students, Mark, Paul, and Jane, who have learned self-monitoring and self-regulation strategies to the extent that she believes they could be re-scheduled into several general education classrooms. However, the reading ability of these students is below grade level and they are unable to read the textbooks with sufficient understanding to be successful in these general education classes. What can she do?

Several students, April, Sue, and John, in Mr. Richard's resource room are making progress toward their goals for reading and writing. Mr. Richard feels strongly that they need to have schedule changes placing them in a general education classroom for social studies. However, the pace of instruction is very fast and he is concerned that these students might fall behind due to their limited note-taking and organization abilities. What can he do?

Mrs. Johnston is a special education teacher who works in a team-teaching situation with a science teacher in a general education class. There are several students, Joe, Mary, and Michael, with learning disabilities in this class. The teacher relies on lecture and note taking for a significant amount of instruction. About one-third of the class is having difficulty in maintaining a passing grade in this class. What can Mrs. Johnston do?

These three fictional scenarios reflect typical concerns of special education teachers working in a variety of service delivery models. Regardless of the model being used, teaching is a complex process with many challenges. On a daily basis teachers must design instruction to meet the needs of a diverse student population. Within any given classroom it is common to find students who are culturally and linguistically diverse, stu-

dents with a variety of disabilities, and students from different socioeconomic backgrounds. This diversity necessitates high quality instruction that promotes successful engagement in the learning process and allows students with diverse needs to gain meaningful access to the general education curriculum.

Promoting access to the general education curriculum is more than just a "good idea". It is established in law. The Individuals with Disabilities Education Act Amendments of 1997 (IDEA) requires that students with disabilities be provided this access and that measures be taken to assure that students are being appropriately prepared for participation in general education classrooms. The No Child Left Behind Act of 2001 (NCLB) requires school district personnel to be accountable for the learning of all students, including those with disabilities. The challenge related to this, however, is to identify instructional practices that address student needs while simultaneously promoting and providing access to the general education curriculum.

Teachers, particularly at the secondary level, use lecture formats to deliver instruction (Hawkins et al., 1994). Although some students have the ability to acquire and synthesize important information obtained from lectures, others struggle with this and need additional support. Typically, the needed support involves strategies to promote active student engagement rather than passive listening. Active student engagement is beneficial for all students, but critical to the success and achievement of students with disabilities (Sterling, Barbetta, Heward, & Heron, 1997). Since many students with disabilities are passive learners who fail to develop their own strategies for interacting with course content in meaningful ways, teachers must facilitate the interaction and active learning. When students receive instruction in general education classes, special education teachers have the additional responsibility of ensuring that general education teachers are aware of appropriate ways to engage students with disabilities in learning important content. When special and general education teachers work together on behalf of students with disabilities, the likelihood that students will learn effective and efficient techniques for active participation in the general education curriculum is enhanced.

The purpose of this article is to introduce instructional strategies that enhance learning when content is delivered to a diverse group of students through lecture formats. These strategies challenge and support students as they access and progress through the general education curriculum. They are appropriate for a variety of educational settings (e.g. general education class, resource room, and/or self-contained class) and are designed to help students make the memory connections that are necessary for success with difficult content. The instructional strategies discussed in this article facilitate active student engagement in the acquisition of important information, as well as the synthesis and retention of the information.

Acquisition of Important Information

When lectures are used to deliver course content, students are frequently expected to listen to discourse, read content from overhead transparencies or power point presentations, understand and extend the presented concepts, participate in discussions, distinguish important points from unimportant points, and record notes. These activities are conducted simultaneously and students are expected to both obtain and retain the information (Lazarus, 1991). For students with disabilities, especially in the secondary

grades, this is quite challenging. Fortunately, research-supported strategies have been developed to promote effective student engagement that results in the acquisition of important content knowledge (Ellis & Lenz, 1990). Specifically, guided notes and visual organizers may be used to help students succeed when lectures are used. (see "What the Literature Says About" box)

What the Literature Says About Instructional Strategies Designed to Promote Acquisition, Synthesis, and Retention of Course Content in Secondary Classrooms

Evidence for Guided Notes

Several studies support the use of guided notes with high school students who have learning disabilities. In one study, Hamilton et al. (2000), tested the hypothesis that providing guided notes to supplement lecture instruction would have an effect on student performance. Seven students, ages 13 to 18 years and identified with a learning disability, were given instruction in a class for incarcerated juveniles. The instruction was provided using a lecture format and guided notes. Student performance was judged on the accuracy of the note-taking and scores on a comprehension quiz. Six of the 7 students improved their academic performance through the use of the guided notes.

Similar results were obtained in another study involving six high school students with learning disabilities (Lazarus, 1991). In this study, the students were taught to use guided notes while listening to tape recorded lectures. The students performed better on class tests when guided notes were used as compared to conventional note-taking methods. In follow-up studies, Lazarus (1993) found that the use of guided notes with and without review were both effective when teaching students with learning disabilities and behavior disorders history in general education classes.

In another study, guided notes were used with students aged 13-18 who were enrolled in a juvenile detention center (Hamilton, Seibert, GarnerIII, Talbert-Johnson (2000). Six of the seven students improved their quiz performance when guided notes were used and all seven reported that they learned more when guided notes were provided.

Finally, in a study involving 26 high school students with high incidence disabilities (LD or EMR), strategic notetaking was found to be effective (Boyle & Weishaar, 2001). Guided notes in the form of written cues to promote the use of metacognitive skills were provided to help students identify lecture topics, link topic to prior learning, summarize, and reflect on key points throughout the lecture. Students in the experimental group who were taught strategic notetaking scored significantly higher than students in the control group on measures of immediate free recall, long-term free recall, comprehension, and number of notes recorded.

Evidence for Visual Organizers

Guastello, Beasley, & Sinatra (2000) compared a concept-mapping procedure to traditional instruction using a textbook to determine which would be more effective in improving academic achievement. One hundred twenty four seventh grade students from an urban private school in New York were chosen to participate in the study. The students were identified as low achieving students based on scores from the Comprehensive Assessment Program and criterion-referenced tests. The students were equally divided into two groups. Instruction was presented to one group in the traditional teacher-directed method of read and discuss.

The second group received an identical introduction lesson and then, was presented with concept maps to connect concepts presented. Scores on a pretest and posttest were compared within subject to determine academic achievement and between subjects to compare instructional methods. Using concept maps as an instructional tool to link concepts was found to be more effective than the traditional instructional method.

Further support for the use of visual organizers is evident in Hudson, Lignugaris-Kraft, and Miller's (1993) review of literature. Their review included eight studies that involved the investigation of the effectiveness of visual organizers for teaching secondary students with learning disabilities in science, social studies, English, and health classes. Positive findings related to student achievement were found in seven of the studies. The researchers noted that it is important for the display to match lesson objectives. They also noted that effective teaching practices must accompany the use of the visual organizer.

Researchers at the University of Kansas Center for Research on Learning have conducted numerous studies to investigate the effectiveness of visual organizers and accompanying teaching routines (Bulgren, Schumaker, & Deshler, 1988; Bulgren, Schumaker, & Deshler, 1994). The results of their programmatic research agenda indicate that visual organizers result in higher academic achievement among students with and without disabilities who receive instruction in general education classrooms.

Evidence for Lecture Pause

In 1994, Hawkins et al. conducted research comparing two types of lecture pause activities: independent practice and peer-guided practice. Twenty-two students identified with learning disabilities and/or emotional disturbance and receiving instruction in a self-contained classroom setting were the participants. During independent practice, students were provided with notes that included sample problems worked out correctly as well as a number of practice problems. During peer-guided practice, students were instructed to discuss the problems as well as the appropriate way to solve the problems together. After each practice session, students were given an answer key and one minute to correct their worksheet. The researchers concluded that use of a structured activity during lecture pauses improves the retention and performance of students with disabilities on mathematics worksheets. There was no statistically significant difference between independent practice and peer-guided practice during the lecture pauses. What appeared to be most significant was that students be provided with several opportunities during a lecture to review, reflect, and practice information presented.

Evidence for Structured Questioning

The three-term contingency format for structured questioning was investigated with four junior high students, three identified with a learning disability and one identified with emotional disturbance (Albers & Greer, 1991). The study was conducted in a self-contained classroom setting. The purpose of the study was to test the effect of increased rate of three-term contingency on correct responding. This rate was compared to the rate of incorrect

responding and the contingency was applied to vocal and written exchanges. Increasing the rate of three-term contingencies had a positive effect on correct responses with little or no effect on incorrect responding. Students were able to correctly respond to vocal and written contingencies with no concomitant increase in incorrect responses (Albers, & Greer, 1991).

In a review of literature that included 23 studies that included 113 participants (94.6 percent with disabilities), Werts, Wolery, Holcombe, and Gast (1995) found that students acquire and maintain most of the instructive feedback information without requiring additional instructional time (i.e., less than 1 minute increase was noted). They also found that this type of questioning feedback is effective in a variety of instructional arrangements (e.g., small and large groups) with students in preschool through secondary settings.

Guided Notes

Although taking notes during lectures is a general expectation in secondary class-rooms, it is important to recognize that many students, especially those with disabilities, may not know **how** to take notes and **how** to discern important information from extraneous information. Thus, during the course of instruction, students may become frustrated, stop taking notes altogether (Hamilton, Seibert, Gardner, III, & Talbert-Johnson, 2000) and ultimately experience debilitating failure in the classroom. The use of guided notes helps prevent this from occurring.

Guided notes consist of lesson outlines that provide main ideas and blank spaces for students to write in definitions, key concepts, and additional information (See Figure 1). Guided notes may also include questions that will be answered during the lecture. Space is provided for students to write the answers (Lazarus, 1991). Teachers may individualize guided notes depending on student ability. For example, more information and fewer blank spaces may be provided for students who have fine motor problems or difficulty processing information.

Figure 1. Examples of Guided Notes

For students who are 'beginners' with Guided Notes:

	0							
No	otes on the Civil War							
V	Horanam	Lincoln	was the Pres	sident of the United States				
du	ring the Civil War.							
In	disagreement with the gover	nment of the United Stat	es a number of souther	n states				
	secedea	, meaning their state	legislatures voted to w	ithdraw from the United				
Sta	ates.							
Uj	oon seceding, these states for	med their own governme	ent called the Con	federate				
	ates of America.							
Th	ney elected Seffers	an .	Davis	as their President				
	emplete key vocabulary, idea							
			n or the information p	To videa. I edenor may				
provide ver	bal cues when to write notes							
For student	s who have had some experi	ence with Guided Notes.	the following format r	nay be used:				
1.	1. Amendment means to make a change							
2.				monly called the				
۷.	2. The first ten amendments to the Constitution of the United States are commonly called the							
	12111 04 1	NAMIS						
3.	Some of the rights guaranteed in these first ten amendments include:							
	a. freedom of							
	b. freedom of	press						
	0 . 0							
	d. right to heep and wear arms							
	e right to tri	al bu jusu						
	c. Tuesday							

In the second example, students are expected to fill in more of the information independently and fewer clues are provided. Teacher provides fewer verbal cues to students

Another form of guided notes involves the use of written cues designed to promote the use of metacognitive skills (e.g., organizing information, combining new information with prior knowledge) to assist in comprehension of the lecture (Boyle & Weishaar, 2001). Students are provided with a Strategic Notetaking Form that cues the students to a) identify the lecture topic and describe what they already know about the topic, b) cluster three to seven main points with details from the lecture as they are discussed, c) summarize the three to seven points (steps b and c are repeated until the lecture is complete), and d) describe five important points from the lec-

Figure 2. Example of PowerPoint Software handout for note-taking

ture. This procedure helps students process and reflect on the content being presented.

For students who are more proficient with their note-taking skills (i.e., ability to identify important information and summarize in note form), PowerPoint Software may be used to generate guided notes. The handouts feature of this program allows teachers to print a page that consists of three slides of information with blank lines to the side. Students write additional notes on the lines as content on the slides is covered. (see Figure 2).

Slide 1

Civil War in the United States

- · Abraham Lincoln elected President
- · Abolition movement growing
- Debate over states' rights vs. federal
 government

Abolition-to end
Abolition movementto end Slavery
Slavery-African
people taken by force
from Africa and hept
as property

Slide 2

- Southern states begin to 'secede' from Union
- Definition of 'secede' and implications
- Organization of seceded southern states

Secede- to withdraw
Southern states wanted
to leave the Union
and form their own
country; called
themselves the
confederacy

Slide 3

- Form Confederate States of America
- Jefferson Davis elected President
- Begin to form constitution and alliances with foreign governments.

Main argument for states' rights Sluvery essential for their economy Tried to make treaties with England and France

Regardless of which format is used for the guided notes, students need to be taught how to use the notes outline. This can be accomplished through scaffolding the instruction and the note-taking process. For example, when students first begin to use guided notes, the teacher may provide a significant amount of the lecture text with only a few blank spaces for student recording. The teacher may also provide direct prompts (e.g., "Write this next statement on your paper"). As students become more proficient with the note-taking process, the teacher gradually increases the number of blank spaces and reduces the number of direct prompts regarding what to write (Miller, 2002).

Visual Organizers

In addition to assuring that students are taking adequate notes, there are tools and strategies for presenting content information to students in meaningful ways. It is important to consider methods of organizing and presenting information so that all students, including those with reading disabilities, will have access to important concepts within the general education curriculum (Ellis & Lenz, 1990). Visual organizers (e.g., charts, diagrams, concept maps, Venn diagrams) are particularly helpful in this process (see Figure 3). Visual organizers are graphic tools used to present information to students and support them in obtaining and retaining the information (Hudson, Lignugaris-Kraft, & Miller, 1993; Kim, Vaughn, Wanzek, & Wei, 2004).

A visual display of information can be used at the beginning of instruction to help students organize the information that will be presented. This display of information may include the specific tasks to be completed, an organization of the topics and subtopics to be covered, a rationale for learning the content,

new and difficult vocabulary, and/or expected student outcomes (Hudson et al., 1993). Visual organizers can be used to help the students connect prior knowledge with new information (Dye, 2000) and understand how two or more pieces of information fit together in meaningful ways (Miller, 2002). In other words, students gain an understanding of the "big picture" of what is being taught instead of simply trying to memorize what appear to be isolated, unrelated facts. Whether a teacher constructs the organizer or uses a predesigned format, the specific, topical information is displayed, discussed, and copied by the students. The lecture and discussion that accompanies the presentation of the visual organizer explicitly links the important concepts so that all students have the opportunity to acquire thorough understanding of the content being taught. This approach also helps students retain the information, which is particularly beneficial for performing well on tests and quizzes. When visual displays are integrated into lectures, students are able to think about the topics, determine key ideas, and formulate graphic representation of those key ideas, thereby supporting necessary memory connections (Dye, 2000).

Synthesis and Retention of Important Information

Lectures often include large amounts of information presented in a quick manner. Students are expected to keep up with the pace of instruction through listening and taking notes. They must sift through the information and determine what is important with little or no direction from the teacher. These expectations are particularly true when providing access to the general education curriculum. In addition to taking in or acquiring information from lectures, students are also

expected to reflect upon the content and demonstrate their understanding of the information presented. This involves high-level thinking and the ability to synthesize important content. Again, active student engagement is a necessity. The use of lecture pauses and carefully crafted questioning routines helps students succeed in this challenging aspect of lecture methodology. (see "What the Literature Says About" box)

Lecture Pauses

Lecture pause is a procedure that involves the teacher stopping periodically throughout the lecture at structured intervals. A typical interval schedule consists of 5-10 minutes of lecture, followed by a 3-5 minute pause. This format is repeated for the duration of the lecture (Hawkins et al., 1994). During the pauses, students are provided the opportunity to reflect upon the information that has been presented to that point. The lecture pause procedure is most effective when students are given specific tasks to complete during the pause. The tasks are based on the experience and ability of the students and may include working on practice problems, reviewing notes, discussing the lecture to that point, writing their own examples, or reading through their notes as many times as possible in the time allotted. The instructional arrangement for the pauses varies depending on the assigned task. Sometimes students work independently and sometimes they work in groups of two or three students during the pauses. It may be helpful to begin with small group arrangements and gradually work toward independent processing of the lecture content. It is important to remember that students need to be instructed in how to use the pauses effectively. By using planned and structured pauses, students have an improved opportunity to focus on, synthesize, and retain

the necessary information and also have opportunities to learn **how** to learn from interactions with their peers.

Structured Questioning

Another method that provides students with opportunities to synthesize important information being presented is structured questioning. There are several ways to effectively use questioning during lectures. Perhaps the most traditional approach to questioning is what Albers and Greer (1991) call the three-term contingency. In this type of questioning, the teacher asks a question, the student answers, and the teacher responds. The teacher's response reflects whether or not the answer is correct as well as some specific feedback regarding the response. Other students in the class benefit from hearing the question, answer, and subsequent feedback. When three-term contingency is used, one student answers at a time. The learning of the student who answers the question is assessed and reinforced and the learning of other students is reinforced as long as they are attentive to the teacher question, the student answer, and the teacher's subsequent response.

The three-term contingency approach to structured questioning can be extended to include *instructive feedback*. Instructive feedback involves posing a question, waiting for the student response, delivering the consequence (i.e., letting the student know if the response was accurate, and then presenting additional information. Students are not expected to respond to the additional information. Researchers have found that the provision of instructive feedback results in additional student learning including students with disabilities (Werts, Caldwell, Wolery, 2003; Werts, Wolery, Gast, & Holcombe, 1996).

An alternative to one student responding at a time is to use simultaneous responding in which all students respond to each question. There are several ways to use simultaneous responding (e.g. choral responding, response cards, and lapboards). Choral responding is a procedure in which students respond in unison orally. It is most effective in small group settings and with a fast paced teacher presentation (Godfrey, Schuster, & Hemmeter, 2003).

Another way to facilitate simultaneous responding is to provide students with response cards. Response cards either have pregenerated answers or are blank for students to write their own answers. The teacher asks a question and all students hold up their response cards simultaneously. Lapboards or response boards are lap-sized white boards and used similarly to the response cards. The teacher poses a question and the students write their own responses on the board and then, hold it up (Heward et al., 1996; Taylor, 1998). The teacher is able to assess the progress of the class quickly by determining how many students have responded correctly. Students do not have the anxiety of potentially responding incorrectly in front of their peers and may be more likely to respond more often. Simultaneous responding helps build a community of learning. Students enjoy these procedures and can use each other as cues for the answers (Heward et al., 1996).

Another approach for structured questioning is to alternate between high-level and low-level questions. High-level questions are open-ended, with a number of correct responses. They require higher order thinking such as problem solving, comparing or contrasting, or hypothesizing. High-level questions can be used in small or whole group activities (Johnston, Markle, & Haley-Oliphant, 1987). Low-level questions are

factual and direct with one correct answer (see Table 1 for samples of these two types of questions). Both forms of questions are helpful in providing students with opportunities to be active participants in their learning (Johnston et al., 1987). Moreover, high-level and low-level questions can be individualized to address the abilities of each student.

Table 1

Examples of high- and low-level questions

Торіс	High-level Questions	Low-level Questions
Civil War	Why did southern states secede? What qualities did Lincoln and Davis need to conduct the war? Describe arguments used by the southern states for secession. Describe the arguments used by members of the abolition movement	What does "secede" mean? What does "abolition" mean? How many states seceded before the Civil War? Who were the presidents of the Union and the Confederacy?
Bill of Rights	Why are the Bill of Rights important? What are some ways you can exercise or use these rights today? Why are there limitations on exercising these rights? What are some implications of the meaning of "inalienable"?	What is the process for amending the Constitution? How many amendments are included in the Bill of Rights? What freedoms are included in the First Amendment? What does "amend" mean?

Regardless of which approach is used for structured questioning, several general guidelines enhance the likelihood that students will benefit from the process. First, it is important to ask only one question at a time. Asking multiple questions in succession has the potential to confuse the students. Second, it is important to provide "wait time" (i.e.,3 to 5 seconds) after asking a question. Many students need a few seconds to process the question and then retrieve the answer. Third, it is important to phrase questions using under-

standable language and language that was used when teaching the content. This helps students understand what is being asked and results in higher levels of student participation. Finally, it is helpful to provide immediate feedback to student responses. Structured questioning provides teachers and students with opportunities to synthesize and assess understanding of critical course content. It also encourages continued engagement in the lesson content. This is important for students to be active participants in their learning.

Final Thoughts

The four strategies discussed in this article (guided notes, visual organizers, lectures pauses, and structured questioning) facilitate the acquisition as well as synthesis and retention of important content presented in secondary classrooms. These strategies enhance student engagement, which is critical to the learning process. As the availability of content to teach continues to increase (e.g. new technological advances, new discoveries, new history) and the standards for student performance continue to rise (e.g., IDEA Amendments of 1997 and NCLB of 2001), the importance of using instructional supports to promote student success becomes apparent. Regardless of instructional setting, both students with and without disabilities have a much better chance of successfully accessing and progressing through the general education curriculum when such supports are in place.

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